

persons at high risk of being hospitalized for severe coronavirus disease.

B.D., C.L., K.J., and E.G. conceptualized and designed the manuscript; coordinated and drafted the initial manuscript; and reviewed the manuscript. P.D.T., D.A., and B.D. reviewed and revised the manuscript. All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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## High Infection Attack Rate after SARS-CoV-2 Delta Surge, Chattogram, Bangladesh

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**To the Editor:** After an initial serosurvey (1) to understand the prevalence of total antibodies to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in residents of the Sitakunda subdistrict was completed, a large epidemic wave hit the area, and nearly all publicly available samples genotyped via GISAID (<https://www.gisaid.org>) were the SARS-CoV-2 Delta variant (2,3). Of the total confirmed infections during the entire pandemic from the Chattogram District, 48.4% (48,253) were reported June 14–August 31, 2021. During September 21–October 9, 2021, we revisited all enrolled households and collected blood from 84% (1,938/2,307) of those tested in our initial serosurvey (Appendix Figure, <https://wwwnc.cdc.gov/EID/article/28/2/21-2417-App1.pdf>).

We tested 721 of the initially seronegative participants who agreed to a second blood draw using the same Wantai total Ab receptor-binding domain assay and found that 68% (492/721) had seroconverted in the approximately 3-month period between survey rounds (Appendix Table 1). Participation in the second round was not associated with serostatus in the first round. Among seropositive participants, 87 (18%) had received  $\geq 1$  dose of SARS-CoV-2 vaccine, and 28.3% (140/492) of those who seroconverted reported having had a sud-

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den onset of  $\geq 1$  coronavirus disease-related symptom since the first serosurvey. Assuming no seroreversion between rounds, 88.2% (1,709/1,938) of participants providing blood in both rounds were seropositive by the second serosurvey. Using our previous methods (1), we estimated an adjusted seroprevalence after the Delta wave of 88.2% (95% CrI 85.4%–90.8%) for all participants and 87.9% (95% CrI 85.2%–90.6%) when including only unvaccinated participants (Appendix Table 2). Seroprevalence among children 1–9 years of age remained significantly lower when compared with 25–34 year olds (28% reduced risk for 1–4 and 16% for 5–9 year age groups;  $p < 0.00001$ ), unlike other age groups (Appendix Table 2). Mirroring evidence from around the world, the Delta variant led to a significant increase in SARS-CoV-2 transmission in Bangladesh, leaving the vast majority of people with detectable serum antibodies.

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**EMERGING  
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# High Infection Attack Rate after SARS-CoV-2 Delta Surge, Chattogram, Bangladesh

## Appendix

**Appendix Table 1.** Overview of participants enrolled and tested in serosurvey rounds 1 and 2. Only participants who were seronegative in round 1 were tested in round 2.\*

Variable	Round 1			R1 participants providing blood sample for R2	Round 2		
	Participants tested	Positive	Negative		Participants tested	Positive	Negative
Age, y†							
1–4	90	53 (58.9)	37 (41.1)	70	42	16 (38.1)	26 (61.9)
5–9	174	103 (59.2)	71 (40.8)	146	86	49 (57.0)	37 (43.0)
10–14	258	118 (45.7)	140 (54.3)	226	103	80 (77.7)	23 (22.3)
15–24	482	177 (36.7)	305 (63.3)	405	147	97 (66.0)	50 (34.0)
25–34	381	123 (32.3)	258 (67.7)	311	101	68 (67.3)	33 (32.7)
35–44	325	100 (30.8)	225 (69.2)	280	83	64 (77.1)	19 (22.9)
45–54	250	70 (28.0)	180 (72.0)	216	59	42 (71.2)	17 (28.8)
55–64	208	76 (36.5)	132 (63.5)	174	65	50 (76.9)	15 (23.1)
65–100	139	44 (31.7)	95 (68.3)	110	35	26 (74.3)	9 (25.7)
Sex							
M	1072	690 (64.4)	382 (39.0)	910	313	216 (69.0)	97 (31.0)
F	1235	753 (61.0)	482 (16.7)	1,028	408	276 (67.6)	132 (32.4)
Overall	2,307	1,443 (62.5)	864 (37.5)	1,938	721	492 (68.2)	229 (31.8)

\*R1, round 1; R2, round 2

**Appendix Table 2.** Overview of SARS-CoV-2 seropositivity, seroprevalence, and relative risk seropositivity in Sitakunda Upazila in the second serosurvey after the Delta wave. Adjusted estimates account for sex, age, household clustering, and test performance among all vaccinated and unvaccinated participants\*

Variable	Observations	Positive	Negative	Seroprevalence (95% CI)	Relative risk (95% CI)
Age, y†					
1–4	70	44 (62.9)	26 (37.1)	67.1 (55.8–77.4)	0.72 (0.58–0.84)
5–9	146	109 (74.7)	37 (25.3)	77.6 (70.0–84.6)	0.84 (0.75–0.93)
10–14	226	203 (89.8)	23 (10.2)	92.8 (88.1–96.7)	1.03 (0.97–1.09)
15–24	405	355 (87.7)	50 (12.3)	90.4 (86.5–94.1)	1.00 (0.94–1.06)
25–34	311	278 (89.4)	33 (10.6)	90.3 (86.7–93.4)	Referent
35–44	280	261 (93.2)	19 (6.8)	94.9 (91.6–97.6)	1.06 (1.01–1.11)
45–54	216	199 (92.1)	17 (7.9)	93.5 (89.1–97.1)	1.04 (0.98–1.10)
55–64	174	159 (91.4)	15 (8.6)	93.6 (88.6–97.7)	1.04 (0.98–1.10)
65–100	110	101 (91.8)	9 (8.2)	93.8 (88.9–97.5)	1.05 (0.98–1.11)
Sex					
M	910	813 (89.3)	97 (10.7)	90.0 (86.7–93.1)	1.04 (1.00–1.07)
F	1,028	896 (87.2)	132 (12.8)	86.2 (83.0–89.2)	Referent
Overall	1,938	1,709 (88.2)	229 (11.8)	88.2 (85.4–90.8)	NA

\*CrI, credible interval; NA, not available

†Age of participants at baseline (first serosurvey).

**Appendix Table 3.** Alternative estimates of seropositivity and seroprevalence assuming all seronegative participants in the first serosurvey who did not participate in the second round remained seronegative. Using this approach, we estimate a lower bound adjusted seroprevalence after the Delta wave of 83.5% (95% CrI 80.7%–86.3%), 83.1% (95% CrI 80.2%–86.0%) when including only unvaccinated participants.

Variable	Observations	Positive	Negative	Seroprevalence (95% CrI)	Relative risk (95% CrI)
Age, y†					
1–4	90	53 (58.9)	37 (41.1)	60.8 (50.7–70.5)	0.69 (0.57–0.81)
5–9	174	120 (69.0)	54 (31.0)	72.0 (64.7–79.0)	0.83 (0.74–0.91)
10–14	258	220 (85.3)	38 (14.7)	87.6 (82.4–92.3)	1.02 (0.95–1.08)
15–24	482	402 (83.4)	80 (16.6)	85.7 (81.7–89.6)	0.99 (0.94–1.05)
25–34	381	326 (85.6)	55 (14.4)	86.3 (82.3–89.9)	Referent
35–44	325	289 (88.9)	36 (11.1)	90.8 (87.0–94.3)	1.06 (1.00–1.11)
45–54	250	222 (88.8)	28 (11.2)	90.0 (85.4–94.1)	1.05 (0.98–1.11)
55–64	208	182 (87.5)	26 (12.5)	89.9 (84.6–94.5)	1.04 (0.98–1.11)
65–100	139	121 (87.1)	18 (12.9)	84.7 (84.3–94.6)	1.04 (0.97–1.11)
Sex					
M	1072	906 (84.5)	166 (15.5)	84.9 (81.5–88.0)	1.02 (0.99–1.06)
F	1235	1,029 (83.3)	206 (16.7)	82.2 (79.0–85.5)	Referent
Overall	2,307	1,935 (83.9)	372 (16.1)	83.5 (80.7–86.3)	NA

\*CrI, credible interval; NA, not available

†Age of participants at baseline (first serosurvey).

**Appendix Table 4.** Alternative estimates of seropositivity and seroprevalence assuming all seronegative participants in the first serosurvey who did not participate in the second round seroconverted. Using this approach, we estimate an upper bound adjusted seroprevalence after the Delta wave of 90.4% (95% CrI 88.1%–92.6%); and 90.3% (95% CrI 88.0%–92.5%) when including only unvaccinated participants.

Variable	Observations	Positive	Negative	Seroprevalence (95% CrI)	Relative risk (95% CrI)
Age, y†					
1–4	90	64 (71.1)	26 (28.9)	74.9 (65.8–83.2)	0.79 (0.69–0.89)
5–9	174	137 (78.7)	37 (21.3)	81.3 (74.6–87.3)	0.87 (0.79–0.94)
10–14	258	235 (91.1)	23 (8.9)	93.7 (89.7–97.1)	1.02 (0.97–1.07)
15–24	482	432 (89.6)	50 (10.4)	92.3 (89.0–95.2)	1.00 (0.96–1.05)
25–34	381	348 (91.3)	33 (8.7)	92.0 (89.0–94.6)	Referent
35–44	325	306 (94.2)	19 (5.8)	95.8 (93.1–98.1)	1.05 (1.01–1.09)
45–54	250	233 (93.2)	17 (6.8)	94.6 (90.8–97.7)	1.03 (0.98–1.08)
55–64	208	193 (92.8)	15 (7.2)	95.0 (90.8–98.3)	1.04 (0.98–1.09)
65–100	139	130 (93.5)	9 (6.5)	95.2 (91.2–98.1)	1.04 (0.99–1.09)
Sex					
M	1,072	975 (91.0)	97 (9.0)	91.9 (89.2–94.4)	1.03 (1.00–1.06)
F	1,235	1,103 (89.3)	132 (10.7)	88.9 (86.1–91.4)	Referent
Overall	2,307	2,078 (90.1)	229 (9.9)	90.4 (88.1–92.6)	NA

\*CrI, credible interval; NA, not available

†Age of participants at baseline (first serosurvey).

